What is claimed is:

Sub a1

1. An optical communication network comprising:

an optical transmission line;

an optical line terminal connected to the optical transmission line;

a first plurality of optical network units each connected to the optical line terminal and configured for optically transmitting TDMA signals of a first wavelength to the optical line terminal through said optical transmission line; and

at least a second plurality of optical network units each connected to the optical line terminal and configured for optically transmitting TDMA signals of a second wavelength different than the first wavelength to the optical line terminal through said optical transmission line.

2. The optical communication network of claim 1 wherein the optical line terminal includes a first optical receiver for receiving the TDMA signals of the first wavelength, and a second optical receiver for receiving the TDMA signals of the second wavelength.

3. The optical communication network of claim 2 wherein the optical line terminal includes at least one wavelength division multiplexer connected to the optical transmission line for routing the TDMA signals of the first wavelength to the first optical receiver and the TDMA signals of the second wavelength to the second optical receiver.

4. The optical communication network of claim 2 wherein the optical line terminal includes first and second recovery circuits connected to the first and second optical receivers, respectively.

5. The optical communication network of claim 4 wherein the optical line terminal includes a multiplexer connected to outputs of the first and second recovery circuits for multiplexing output data to a common data receiving point.

6. The optical communication network of claim 5 wherein the multiplexer includes buffers for selectively buffering said output data.

7. The optical communication network of claim 1 wherein the optical transmission line is a fiber optic line.

8. An optical communication network comprising an optical transmission line, an optical line terminal connected to the optical transmission line, and N optical network units, each of the optical network units being connected to and communicating with the optical line terminal through the optical transmission line at one of M different wavelengths using a TDMA protocol, where N and M are integers and $1<M<N$.

9. The optical communication network of claim 8 wherein M is two.

10. The optical communication network of claim 8 wherein M is greater than two.

11. In a passive optical network having an optical line terminal and a first plurality of optical network units passively connected to the optical line terminal through an optical transmission line, the first plurality of optical network units communicating with the optical line terminal at a first wavelength using a TDMA protocol, the improvement comprising a second plurality of optical network units passively connected to the optical line terminal through the same optical transmission line as the first plurality of optical network units, the second plurality of optical network units communicating with the optical line terminal at a second wavelength different than the first wavelength using a TDMA protocol.

12. The passive optical network of claim 11 wherein the network has an architecture selected from the group consisting of ring, tree and bus architectures.

13. A method of grouping optical transmitters for use in an optical communication network, the method comprising the steps of:

providing a plurality of optical transmitters having the same nominal wavelength;

determining the operating wavelength for each of said optical transmitters; and

separating the plurality of optical transmitters into a plurality of different groups according to the determined operating wavelengths.

14. The method of claim 13 wherein the separating step includes identifying at least one reference wavelength and assigning each of the optical transmitters to one of the different groups according to whether its operating wavelength is greater or less than said reference wavelength.

15. The method of claim 14 wherein the separating step includes identifying at least two reference wavelengths and assigning each of the optical transmitters to one of at least three different groups according to whether its operating wavelength is greater or less than each of said two reference wavelengths.

16. The method of claim 15 wherein said three groups include a first group for optical transmitters having operating wavelengths less than both of the two reference wavelengths, a second group for optical transmitters having operating wavelengths greater than both of the two reference wavelengths, and a third group for optical transmitters having operating wavelengths between the two reference wavelengths, the method further comprising the step of using optical transmitters from the first group and the second group, but not the third group, to configure a plurality of optical network units for optically transmitting signals in one of a first wavelength range and a second wavelength range, respectively, in a particular optical network.

17. The method of claim 13 further comprising the step of using one of the groups of optical transmitters to configure a first plurality of optical network units for optically transmitting signals in a first wavelength range, and using another of the groups of optical transmitters to configure a second plurality of optical network units for optically transmitting signals in second wavelength range.

18. The method of claim 17 wherein said signals are TDMA signals.

19. The method of claim 13 wherein the optical transmitters are laser diodes.

20. The method of claim 13 wherein the providing step includes providing a plurality of commercially available optical transmitters having the same nominal wavelength.